**Advanced Algebra Concepts and Connections Course Syllabus**

**Teacher: A. Francis**

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**Course Description:**
Advanced Algebra: Concepts & Connections is the third course in a sequence of courses designed to ensure career and college readiness. It is intended to prepare students for fourth mathematics course options relevant to their postsecondary pursuits. High school course content standards are listed by big idea, including Data and Statistical Reasoning, Probabilistic Reasoning, Functional and Graphical Reasoning, Patterning and Algebraic Reasoning, and Geometric and Spatial Reasoning. In Advanced Algebra: Concepts & Connections, students will continue to enhance their data and statistical reasoning skills as they learn specific ways to collect, critique, analyze, and interpret data. Students will learn how to use matrices and linear programming to represent data and to solve contextually relevant problems. Students will strengthen their geometric and spatial reasoning skills as they learn how to solve trigonometric equations using the unit circle. In previous courses, students studied how to use linear and quadratic functions to model real-life phenomena.

In Advanced Algebra: Concepts and Connections, students will further develop their functional and graphical reasoning as they explore and analyze structures and patterns for exponential, logarithmic, radical, polynomial, and rational expressions, equations and functions to further understand the world around them.

**Units of Study:**

1. **Unit 1:** Descriptive and Inferential Statistics
2. **Unit 2:** Exponential and Logarithmic Functions
3. **Unit 3:** Investigating Radical Function

**Course Objectives:**

* **A.MP: Display perseverance and patience in problem-solving. Demonstrate skills and strategies needed to succeed in mathematics, including critical thinking, reasoning, and effective collaboration and expression. Seek help and apply feedback. Set and monitor goals.**
* **AA.MM.1: Apply mathematics to real-life situations; model real-life phenomena using mathematics.**
* **AA.DSR.2: Communicate descriptive and inferential statistics by collecting, critiquing, analyzing, and interpreting real-world data.**
* **AA.FGR.3: Explore and analyze structures and patterns for exponential and logarithmic functions and use exponential and logarithmic expressions, equations, and functions to model real-life phenomena.**
* **AA.FGR.4: Explore and analyze structures and patterns for radical functions and use radical expressions, equations, and functions to model real-life phenomena.**

**Required Materials:**

* Composition notebook and pencil.

**Grading Policy:**

**Purpose of Grades:**

* Provide helpful feedback for success and growth.
* Aid teachers in lesson planning.
* Inform parents to support their children's learning.

**Grading Criteria:**

1. Grades reflect student learning.
2. Grades are fair.
3. Grades are clear and consistent.
4. Grades are timely and provide helpful feedback.
5. Grades support learning.

**Academic Grade Reporting:**

* Grading will be on a 100-point scale.

**Final Grades Calculation:**

* **Minor Grades (60%):** Quizzes, labs, and graded assignments. Minimum of 5 per 6-week period.
* **Major Grades (40%):** Unit tests, essays, projects. Minimum of 2 per 6-week period.

**Class Policies and Expectations:**

**Be Respectful:**

* Respect yourself, classmates, teacher, and the learning environment.
* Use appropriate language and listen when others speak.

**Be Responsible:**

* Come prepared every day (notebook, pencil).
* Take ownership of your actions, work, and learning.

**Be Ready to Learn:**

* Arrive on time and engage in bell work immediately.
* Ask questions and participate actively.

**Follow Directions:**

* Pay attention to instructions and transitions.

**Additional Policies:**

* **Absences:** It is the student’s responsibility to make up missed work.
* **Late Work:** Accepted within one week with 5% per day up to 25% grade deduction (unless excused).
* **Retakes:** Quizzes/tests may be retaken after completing corrections or additional practice at the teacher’s discretion.

**Note:** This syllabus is designed to give an overview of the course and expectations. Please review it carefully and reach out with any questions.

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**Course Description**

**Advanced Algebra: Concepts & Connections** is designed for 11th-grade students to ensure career and college readiness. This course prepares students for advanced mathematics relevant to their postsecondary pursuits. The course covers big ideas including:

* Data and Statistical Reasoning
* Probabilistic Reasoning
* Functional and Graphical Reasoning
* Patterning and Algebraic Reasoning
* Geometric and Spatial Reasoning

Students will enhance their data and statistical reasoning skills, learn to use matrices and linear programming, and strengthen their geometric and spatial reasoning by solving trigonometric equations using the unit circle.

**Course Objectives**

1. **Unit 1:** Descriptive and Inferential Statistics
2. **Unit 2:** Exponential and Logarithmic Functions
3. **Unit 3:** Investigating Radical Functions

**Required Materials**

* Composition notebook
* Pencil

**Grading Policy**

**Purpose of Grades:**

* Provide feedback for success and growth.
* Aid teachers in lesson planning.
* Inform parents to support their children's learning.

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* Ask questions and participate actively.

**Follow Directions:**

* Pay attention to instructions and transitions.

**Course Content Standards**

* **AA.MP:** Display perseverance and patience in problem-solving; demonstrate critical thinking, reasoning, and effective collaboration.
* **AA.MM.1:** Apply mathematics to real-life situations; model real-life phenomena using mathematics.
* **AA.DSR.2:** Communicate descriptive and inferential statistics by collecting, critiquing, analyzing, and interpreting real-world data.
* **AA.FGR.3:** Explore and analyze structures and patterns for exponential and logarithmic functions.
* **AA.FGR.4:** Explore and analyze structures and patterns for radical functions.
* **AA.FGR.5:** Extend exploration of quadratic solutions; create polynomial expressions and solve polynomial equations.
* **AA.PAR.6:** Represent data with matrices and solve systems of linear equations for real-world applications.
* **AA.GSR.7:** Develop an understanding of the unit circle; solve trigonometric equations using the unit circle.
* **AA.FGR.8:** Analyze the behaviors of rational functions to model mathematical problems.